

RESULTS OF FOLIAGE SAMPLING OF PEACH ORCHARDS
IN SUTTER COUNTY, CALIFORNIA, JUNE 1981, TREATED
WITH AZINPHOS-METHYL NINE DAYS AFTER APPLICATION

by

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SUMMARY

Two peach orchards were sampled for foliar residues of azinphos-methyl (Guthion) 9 days after application. The reentry interval after application of this organophosphate insecticide on peaches is 14 days. Three replicate samples were taken from each orchard: 2 to be analyzed for both dislodgeable and penetrated residue, and 1 to be analyzed for total residue. Dislodgeable residues--of primary concern vis-a-vis worker exposure--were 0.80 and 0.85 ug/cm² in 1 orchard and 0.45 and 0.57 ug/cm² in the other. Total residues were 136 and 117 ppm, respectively. All samples were negative for total azinphos-methyl-oxone to a minimum detectable level of 0.05 ppm. It might have been safe to send workers into this particular field for activities requiring substantial body contact with the leaves 9 days after application of Guthion if we could have been assured that all workers would have worn clean clothes daily and had a complete bath daily to remove any residues accumulated during the day.

INTRODUCTION

On June 3, 1981, a grower in Sutter County applied 1.5 pounds per acre of Guthion 50 (50% wettable powder in water-soluble bags) to 2 orchards of peaches. The reentry interval for azinphos-methyl (Guthion 50) is 14 days when used on peaches and nectarines. The expiration of this interval was June 17. On June 10, the grower requested that the Department take samples and analyze them for early reentry authorization under Section 2479 of the California Administrative Code. Such sampling and analysis are generally the responsibility of the grower; this situation was unique in several ways, however, and the Worker Health and Safety Unit judged that the information available from such sampling would be useful to add to its information data base on Guthion residues, and thus determined to collect the samples themselves.

MATERIALS AND METHODS

Leaf samples were obtained with a leaf punch, taking a 1-inch diameter disc from each of 4 sides of each tree sampled. Discs from 20 trees, on a diagonal across the field, were composited to form a single sample. Three replicate samples were taken in each field; 2 of the samples were submitted to the laboratory for analysis of dislodgeable and penetrated residues, and 1 for analysis of total leaf residues of azinphos-methyl and its oxidized breakdown product, azinphos-methyl-oxone.

The analytical method used was that documented by Gunther in The Bulletin of Environmental Contamination and Toxicology, 9, 243-249, 1973. It has been documented several times in detail, with modifications to accommodate the various pesticides, and their metabolites, with which the Worker Health and Safety Unit has been concerned.

RESULTS

The results of analysis of samples taken are shown in a table below:

Table I

Results of Analysis of Foliage Sampling of Two Peach
Orchards in Sutter County, California in June 1981

Azinphos-methyl Residue (June 11, 1981)

	<u>Sample</u>	<u>Dislodgeable (ug/cm²)</u>	<u>Penetrated (ppm)</u>	<u>Total (ppm)</u>
Block 1	1	0.80	26.7	
	2	0.85	20.8	
	3			136.
Block 2	4	0.45	104.3	
	5	0.57	15.4	
	6			117.

All total samples were negative for oxone (oxygen analog) residue levels at a minimum detectable level of 0.05 ppm.

Residues found in this study were substantially lower than those found in an earlier study (A Study of the Decay of Azinphosmethyl (Guthion) on the Foliage of Peach Trees in Stanislaus County, California by Keith T. Maddy, et al, HS-396). Unusually high temperatures during June of 1981 may have contributed to a rapid breakdown of the pesticide. It was somewhat surprising, though, to find nondetectable levels of azinphos-methyl-oxone in this particular instance.

CONCLUSION

Azinphos-methyl residues were lower than expected, possibly due to extremely high temperatures. Had results of this sampling been available before expiration of the reentry interval required by regulation, and if we could have been assured that all workers would bathe and wear clean clothes daily to remove any accumulated residues, the 2 orchards sampled could possibly have been released for early reentry.